

**Pharmacological analysis of the
Neuromuscular properties of
Diethylcarbamazine citrate in Vitro.**

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Abstract:

The pharmacological actions of diethylcarbamazine citrate (DECC) have been examined in vitro on isolated chick biventer-cervicis muscle preparations. DECC (5×10^{-1} - 1.5mM) produced a concentration-related initial augmentation of the indirect electrically-evoked twitches followed by a sustained, longer-lasting secondary depression of the twitches of the skeletal muscle-nerve (chick biventer-cervicis) preparations examined. DECC-induced twitch depression was competitively reversed by increasing calcium ion (Ca²⁺) concentration of the bathing fluid. The contractual responses of innervated chick biventer m muscle preparation induced by bath-applied low concentrations (2.5×10^{-2} M) of carbachol, acetylcholine or nicotine was markedly augmented by DECC (10^{-3} - 2.5×10^{-2} M). This same concentration of DECC (10^{-3} - 2.5×10^{-2} M) also depressed the contractile responses of the muscle elicited by high concentrations of the agonists. Relatively high concentrations of DECC (10^{-1} - 2.5mM) dose dependently contracted isolated chick biventer cervicis muscle preparations, and demonstrated measurable anticholinesterase activity. It is concluded that DECC possesses both direct (post-junctional) and indirect (pre-junctional) effects at the neuromuscular junction, and that the neuromuscular blockade produced by DECC is possibly post-junctional in origin. The clinical significance of the neuromuscular blockade produced by DECC is also discussed.

Keywords: DECC/ muscle/ cervicis/ neuromuscular

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